

# Lighting & Sound international

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## Inside:

Interview with Color Kinetics' president & chairman

### **On Tour: Granddad rockers Whitesnake**

Olympian Vision: the 2004 Opening Ceremony

### **KOKO? I should: the latest incarnation of a Camden legend**

Technology sets the scene for The Woman in White

### **Technical Focus: it's a noise boy's Christmas list**

Plus: Digico's D1 debuts with Katie Melua, White Nights in Italy, HK Audio, World Wrestling hits the UK, Crew Cuts, Book Reviews and more . . .

## KOKO

Camden Palace is reincarnated



# The Woman in White

It's a busy autumn of new musicals in London this year.

Still to come: *The Producers* and *Mary Poppins*. But first into the fray, the latest from Andrew Lloyd Webber: *The Woman In White*.

Rob Halliday reports . . .

*The Woman In White*, freely adapted by playwright Charlotte Jones and lyricist David Zippel from the Victorian novel by Wilkie Collins, was brought to life at the Palace Theatre by a team led by director Trevor Nunn.

## Design

The show's first challenge was the 66 locations it demanded! The Palace Theatre stage does not offer an enormous amount of space, and the budget for the show was tightly controlled by its producers Sonia Friedman and Lloyd Webber's Really Useful Theatre Company. But Trevor Nunn had already worked with designer William Dudley on a show with a similar set of challenges - Tom Stoppard's *The Coast of Utopia* trilogy at the National Theatre in 2002, in which nine hours of theatre took in 75 scenes. "Tom said to me that *Utopia* was written like a movie," Dudley recalls, "with the idea of movement of space and time. He also said that he didn't want a black box with a tree, but some way of representing those worlds."

Dudley's solution lay in his 14-year experimentation with computers. "I bought my first computer in about 1990 - a Macintosh IIfx, top of the range then. And I got Photoshop - a revolutionary tool. By 2000 I was using it in every area of my work, pushing it to do things it wasn't really designed to do. And I'd done some shows, such as *Lenny*, with big coloured slides, and I remember thinking - if only I could animate those."

Having seen films such as *Toy Story*, Dudley began researching 3D software - and

discovered the 3D design and rendering package Cinema 4D. "It was incredible the things it could do, beautiful work with light hitting objects or travelling through atmosphere or smoke or water. I think it's remarkable that these mathematicians and engineers and software guys with their algorithms have been able to model real life in this way, as if they were capturing its DNA."

That provided the answer for *Utopia*, which featured a revolve backed by a wrap-around screen onto which Dudley projected a computer-generated 'virtual world' of animated scenery. The world was so complete that as the revolve rotated the actors and furniture, the projections would revolve with it, giving a complete 360° view of the world. Dudley received the Critics' Circle award for his work on the show.

"Trevor then rang out of the blue in spring 2003 saying, 'listen to this,' describing the script - a field in the Cumberlands, the village, the trees, and he said 'it's your system'. He wanted to keep the semi-circular shape from *Utopia*. But as you learn more you get more ambitious, and as well as the screen I wanted to be able to re-configure the stage space, to go from front-cloth to mid-cloth to back-cloth."

So, for *Woman in White* the physical design is again a wrap-around grey-painted 5m high wooden screen on the edge of a revolve, but the outer sections of the screen can track around to 'seal off' the front of the stage. The upstage section of the screen can also track forwards onto the revolve, with a replacement section moving forward to take its place; the tracking

screen can move across the revolve and turn with it. All of the movement is automated using drives and control from Stage Technologies, with the scenery engineered by Delstar, and constructed by Scena.

Onto the screens, Dudley then conjures a denser, more complex, sharper world than that created for *Utopia* - flyovers across rugged landscapes, walkthroughs in grand castles, country waterfalls, on occasion even allowing the actors to interact with the virtual scenery, climbing along a castle wall, for example. The worlds also 'live' more, some even featuring virtual performers. "Trevor said he wanted the streets of London to be teeming with people, so we had a day in a studio and the resulting footage was then placed into the rendered scenery in After Effects."

The realization of Dudley's vision was entrusted to the team of Dick Straker and Sven Ortel of Mesmer, with their experience on many theatrical productions that have incorporated video. The workload for the show meant that they and Dudley also brought in others to help the designer, including 3D animator and compositor Richard Kenyon, video editor Ian Galloway, 3D modellers Matthew 'Mash' O'Neill and Jannis La Belle, plus Matthew Kinley and Gary McCann to provide a link to the 'real world' of the theatre.

The improvement in the visual experience Bill Dudley credits to more experience - "this is still a work in progress, the state of my art" - and improving technology, principally faster computers and brighter projectors. "The computers in 2001 were not quite up to it - chugging along while rendering. For *Woman in White* we were using dual-processor G5 Macintoshes, and the difference was phenomenal!" As for the projectors, Dick Straker notes that "the projectors are brighter than those we used on *Utopia*, not necessarily because they're new projectors but because as newer models have come out these have come down in price to a point where we can afford them!" This meant that single projectors could be used, whereas *Utopia* used double-stacked projectors to gain brightness at the expense of image sharpness.

*Woman in White* uses four Barco G10 ELMs overstage covering the curved screen, with another two G10ELMs on a new front-of-house truss on the main screen when it is closed downstage. The same truss houses two Barco G8 SLMs fitted with Vari-Lite VLM moving mirrors to allow the projection to follow the tracking/revolving screen. All of the projectors were housed in acoustic enclosures devised by video supplier XL Video, and all are designed to fly in to the deck for maintenance. A complex control cable infrastructure, using a mixture of Cat 6 and video transmission optimized UTP, links all of the projectors to the control system.



"Production manager Richard Bullimore was great," Sven Ortel recalls. "I don't think he always understood the video technology, but he was really supportive - making sure Unusual hung the front-of-house truss, which involved bolting through the sides of the building, in exactly the right place."

For the control system, the show presented some particular challenges. Dick Straker: "... soft edge masking for joining the projected images together seamlessly. Masking to the curved screens. The need for DMX as well as video control for the moving mirrors. Our desire to go up to XGA resolution. The distortion of the images to correct them to the geometry of the screen and the projection angle. And, most crucially, there was the movement of the screens - which meant that the correction geometry would have to change over timed cues.

"We could see lots of ways of doing this, but all involved bolting together lots of different

systems from lots of different people. It didn't seem very elegant. Eventually Malcolm Mellows at XL suggested that it might be worth creating our own system, and introduced us to Quintin Willison of Digital Antics. Quintin was great - he's one of those software people who will say yes, anything is possible. Though he's also used to corporate projects where everything is a bit more tied down. I think it was quite a shock for him to be in the theatre during the technical rehearsals!"

The resulting system has been dubbed the 'Mesmerist' by all involved. It's a combined media server and control system that, for *Woman in White*, has nine active servers plus three backup servers that can be switched in at the touch of a button. It meets all of Mesmer's requirements, some evolved with Willison as the show was created. The system can be programmed with theatrical-style cue sequences, making it easy and familiar to theatre users such as the show's video crew of Damian Ridge and Patrick Achegani.

It all works remarkably well in the context of the show - the biggest surprise perhaps being that it's created by Bill Dudley, a designer long known for spectacular 'real' scenery in shows such as *The Shaughran* at the National, which covered territory not dissimilar to *Woman in White*. But then he reveals his background as a landscape painter, and recalls "Jocelyn Herbert admonishing me about big lumpy trucks!" You suddenly realize that he's not trying to replace the solid scenery we've all become used to, but something altogether different. "We're trying to bring back the era of the scene painter - a 21st century version where, through the magic of 3D and computers, we can bring it to life, bring visual content to the play. Don't forget that the word 'theatre' comes from 'to see,' whereas 'auditorium' comes from 'to hear'. I think we should be able to provide visual riches, otherwise you might as well listen to the play on the radio!"



### Lighting

Of course, you still need to see the actors - and Dudley admits that he doesn't make it easy. "It's tough for the lighting designers, because the projectors are not quite bright enough yet - though they're getting brighter all the time. I think Polly's got closest to the feeling of the projection without swamping it."

Polly is Paul Pyant, perhaps best known for his lighting work in the fields of opera, ballet and drama, though he has lit acclaimed productions of *Carousel* and *Cabaret*, amongst others. He does admit to some level of fear when first being brought into *The Woman in White*, because of the knowledge that the look of the show would be driven by the projection. He was also concerned about blending the lighting and video together which led to some early investigations of 'filmic' lighting using products such as High End's DL1, though those quickly faltered on budgetary grounds.

Even without that technology, Pyant has managed to create lighting that seamlessly links the real and virtual worlds into one coherent whole - a standout moment being when the lighting takes on the scything low angle and deep orange colour of a hazy sunset outside a church portrayed in the video. Pyant does admit that much of that was achieved by careful pre-production guesswork (the rich warm, Lee 777, being one of a number of colours from Lee's new designer range that live in the show's scrolls alongside Pyant's staples: "I'm very fond of the television colours, 238/236/232. I tend to stick to what I know. Lee 120 is as deep as I go!") and then in the theatre using a flexible rig. "The information we got in advance was negligible," he recalls, "and we started the tech with lots of 'blank space markers' on the screen. But the rig we designed was very flexible - we didn't really do any re-rigging, and any changes we wanted to make we could do by re-programming."



That flexible rig is based on a core of tungsten moving lights: ETC Revolutions (14, six with shutters), Strand Pirouette PCs (6), City Theatrical Autoyokes (15) and Vari-Lite VL5Bs (15). "I've never been fond of discharge lamps with dichroic colour mixing - you tend not to get the colour you want, or you have 20 lights and they're all slightly different."

However, the designer did include six VL3000Q spotlights, fitted with glass gobos made from material provided by Bill Dudley as well as stock DHA and GAM gobos. "Even though Bill's gobos are very intricate and dense, the VL3000s can project them very well." One MAC 2000 Performance with its linear animation effect completes the moving light list.

The conventional rig is based on ETC Source Fours, many fitted with Rainbow colour scrollers, as well as VSFx cloud effects; overhead the rig lives on two circular ladderbeam trusses, one following the shape of the projection screens, the other

sitting inside it at a high dead of almost 10m to allow the projections to clear beneath it. Completing the rig are four 1kW beamlight followspots (two located on side-circle front-of-house positions and two just behind the proscenium) which do much of the work of lighting the performers; all of the equipment is supplied by White Light and The Moving Light Company.

Working with Pyant were his long-time associate LD David Howe, assistant LD James Farncombe, production electrician Gerry Amies leading a team that included Martin Chisnall, Chris Dunford and Ian Moulds as well as the Palace's crew led by Kriss Buddle, and lighting programmer Vic Smerdon, who ran the entire rig from a Strand 500-series console. "Vic is part-tastic," Pyant notes, "with some cues having up to 12 parts. This means that, even with some quite complex transitions, there are only about 75 lighting cues in each act." The transitions are complex because the lighting moves with the projection, "so we could go from one scene to the next without having to take everything down as a scene ends. The movement is often subtle, but when the video stops everything stops and that works quite well."

The show was lit over the two week 'dry tech' when scenery and video were programmed without the cast, then refined over the two weeks of Trevor Nunn's 'double tech', working through the show twice, then further over the two week preview period. "On the first night Trevor came up and gave me a great big hug and said 'you just do it before I think it.' So, despite the fact that there was very little advance discussion, I guess we've got it right!"

### Sound

To design the sound for the show, Andrew Lloyd Webber turned to Mick Potter, following successful collaborations on *Tell Me On A Sunday* and *Bombay Dreams*. Potter's brief was clear: "Andrew and Trevor wanted to be able to hear every word," the designer notes, "plus there is a big dynamic in the music. They wanted a very natural sound with a reasonably invisible system - so no huge line arrays!"

Potter was able to take advantage of a gap in the Palace Theatre's schedule to do some on-site comparisons of different loudspeakers for his dual-system, vocal/orchestra design. "For the vocal system we ended up with d&b Q7 and Q10s because they seemed to be the most natural sounding, even when being played reasonably loudly." Three of the Q7s are cantilevered back quite dramatically from an advance truss to sit on the line of the proscenium to give Potter "a position that would basically cover the whole of the audience as a central vocal cluster; these have their horns rotated to give a 70° vertical

coverage." The orchestral system then consists of Meyer CQ1 and CQ2 loudspeakers along with four Meyer UPJs.

The rest of the loudspeaker system is a large, distributed array of smaller loudspeakers: 112 d&b E0 units. "We have delay and surround loudspeakers on all four levels of seating, with two sets of delays under the balcony. The surrounds are used for sound effects and also, a little, for the orchestra. It is a good theatre to work in since it was conceived as an opera house." On-stage presented more of a challenge since Dudley's hard-surfaced curved screen forms a spectacular parabolic reflector, leading to some surprising acoustic effects on stage! "We have 20 small loudspeakers in the show deck, but only the ones we really need are turned on at any given moment - just enough to give the performers some of the sound from the fourteen piece orchestra without energizing the whole space."

To collect the sound Potter uses 30 Sennheiser SK5012 transmitters with 1046 receivers and his mic-of-choice, the DPA461. These, together with the sound effects from Akai S6000 samplers and an TC Electronics M6000, are marshalled at a Yamaha PM1D digital mixing console, of which Potter has long been a fan. "On this

show we did consider the Cadac route, but then we heard Yamaha's new LMY2-MLAB 28 bit pre-amp and A-D card input card, which is a huge improvement sonically." A Yamaha DM2000 is also used as an additional input mixer.

"The main advantage the digital console gives is that you have so much control - you can switch foldback for each scene, or have different delay times for each performer, or change the orchestra mix, all moment by moment. You couldn't do that sort of subtle work on an analogue console.

"We also ran a complete second control surface during technical rehearsals, so that I could make changes without getting in the way of Tim Clark, who was mixing the show. And you can control everything from your laptop - that was very useful, particularly here where you're trying to tune the system and listen across four levels."

As well as Clark, Potter's team on the show includes Jo Wredde and Katie Weatherley, assistant sound designer Paul Gatehouse with Crispian Covell leading the production sound team. The complete sound system and communications system (including the BTR700 duplex radio headset network) was provided by Orbital, who also provide technical support for the installation.

Potter declares himself pleased with his work on the show - though he is quick to give credit elsewhere. "The show has a fantastic cast - Michael Crawford, Maria Friedman, Edward Petherbridge, Martin, Angela, Jill, musical supervisor Simon Lee, everyone - they're all highly talented and hugely experienced, and that makes it very easy to make it sound good." And sound good it does. The highest compliment: one could watch the show and be completely unaware of any sense of 'sound' while at the same time hearing every word and with the orchestra sounding fabulous!

### The Production

Perhaps more in the style of his *Aspects of Love* than some of his more 'epic' shows, the contradiction of *The Woman In White* is that it works as an old-fashioned piece of theatrical entertainment because of the very 'new fashioned' technology brought to bear on it. Some may scoff at Bill Dudley's virtual scenery, and he himself admits it's not the answer for every show. But for this show, in this theatre, it works remarkably well. To the designer's delight, many of the critics picked up on this and commented favourably on it. And, of course, he's already working on improvements for next time . . .

**Photography: David Morrell**



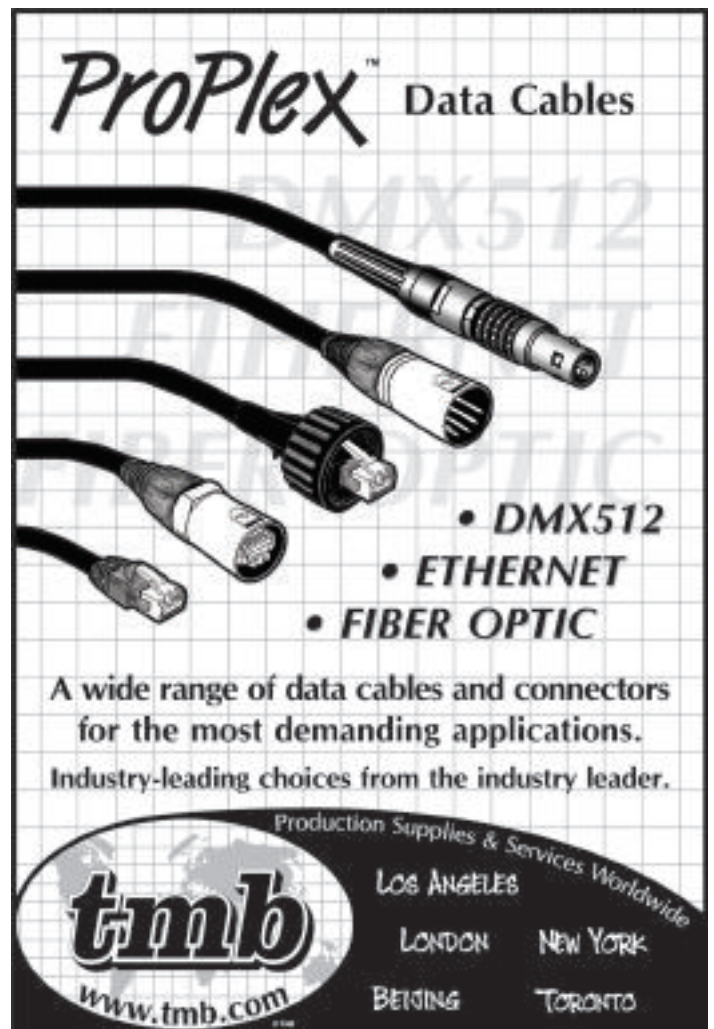
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